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Docket No. 2991

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Victor Yeeman Lo

Serial No.: 10/029,599

Filed: December 20, 2001

For: A SYSTEM AND METHOD FOR INCREASING CHANNEL
CAPACITY OF FIBER-OPTIC COMMUNICATION NETWORKS

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Honorable Commissioner of Patents and Trademarks
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DISCLOSURE TO THE EXAMINER

Sir:

In compliance with the duty of disclosure the following
patents are submitted for the Examiner to consider and cite if
they are deemed pertinent:

| <u>PATENTEE</u> | <u>PATENT NO.</u> |
|-----------------|-------------------|
| Meli | 5,793,508 |
| Alexander et al | 5,798,855 |
| Pan | 6,038,357 |
| Mendez et al | 6,025,944 |

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PUBLICATIONS

(1) Lo, Y.V., "On a Statistical Space-Time Modulation Theory," *Proc. IEEE P.R. Conf. On Communications, Computers and Signal Processing*, pp. 584-589, Victoria, B.C., Canada, June 1989.

(2) Lo, Y.V., "Space-Time Processing for Optical Communication Systems", *Proc. 15th Sym. Comm.*, pp. 176-179, Kingston, Ontario, Canada, June 1990.

(3) S. Benedetto, et al., Multilevel Polarization Modulation Using a Specifically Designed LiNbO₃ Device, *IEEE Photonic Tech. Lett.*, August, 1994, pp. 949-951.

I hereby certify that this correspondence is being deposited with the U. S. Postal Service as first class mail, postage prepaid, under 37 CFR 1.10 in an envelope addressed to Commissioner of Patents and Trademarks, Washington D.C. 20231.
Date: February 26, 2002

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By:
David O'Reilly, Reg. No. 26,102

(4) S. Benedetto and Poggiolini, "Theory of Polarization Shift Keying Modulations," IEEE Trans. on Comm., vol. 40, pp. 708-721, Apr. 1992.

(5) S. Benedetto and Poggiolini, "Multilevel Polarization Shift Keying: Optimum Receiver Structure and Performance Evaluation" IEEE Trans. on Comm., Mar. 1994.

(6) S. Betti, G.D. Marchis, and E. Iannone, "Polarization Modulated Direct Detection Optical Transmission Systems," J. of Lightwave Technol., vol 10, pp. 1985-1997, Dec. 1992.

(7) S. Benedetto, et al., "LiNbO3 modulator for binary and multilevel polarization modulation," OFC '94 Tech. Dig., p.p. 286-287. (1994).

(8) L.A. Campos, "16-Gbit/s time- and polarization-division-multiplexed system using a novel compensation technique," OFC '94 Tech. Dig., pp. 14-15. (1994).

(9) P.M. Hill, et al., "Optical Polarization Division Multiplexing at 4 Gb/s," IEEE Photonics Tech. Lett., May 1992, pp. 500-502.

(10) J.J. Pan, et al., "Endless Fiber-Optic Polarization Controller with Low Driving Voltage and 30-dB Extinction Ratio," OFC '94 Technical Digest, pp. 125-126, 1994.

(11) S. Benedetto, "Polarization Recovery in Optical Polarization Shift-Keying Systems," IEEE Trans. On Comm., vol. 45, No. 10, October 1997.

The Meli Patent No. 5,793,508 discloses a method of generating two optical transmission signals; wave division multiplexing (WDM) the optical signals, then separating the received optical transmission signals by splitting the received optical signal onto at least two optical output paths.

The Alexander et al Patent No. 5,798,855 discloses a WDM optical communication system in which the output of a plurality of optical transmitters is combined into a single output,

amplified multiple times then split at the receiving end. The system is designed to survive failure of an optical amplifier.

The Pan Patent No. 6,038,357 discloses fiber-optic PDM-WDM system comprising a plurality of sets of laser sources maintained at fixed polarization states. This design achieves an increase in channels at the expense of using multiple sets of laser sources.

The Mendez et al Patent No. 6,025,944 discloses a clever but complex coding scheme to perform a hybrid mixing of WDM and CDMA. The complex switching and coding method to improve channel capacity is a trade off that is unclear.

The publication of Lo, Y.V., "On a Statistical Space-Time Modulation Theory," *Proc. IEEE P.R. Conf. On Communications, Computers and Signal Processing*, pp. 584-589, Victoria, B.C., Canada, June 1989, is a theoretical discussion of statistical space-time modulation.

The publication of Lo, Y.V., "Space-Time Processing for Optical Communication Systems", *Proc. 15th Sym. Comm.*, pp. 176-179, Kingston, Ontario, Canada, June 1990, discusses novel optical receiver architecture using state of the art optical devices.

The publication of S. Benedetto, et al., Multilevel Polarization Modulation Using a Specifically Designed LiNbO₃,

IEEE Photonic Tech. Lett., August. 1994, pp. 949-951, describes the hardware implementation of a polarization modulator.

The publication of S. Benedetto and Poggiolini, "Multilevel Polarization Shift Keying: Optimum Receiver Structure and Performance Evaluation" IEEE Trans. on Comm., Mar. 1994, discusses in detail a polarization demodulator.

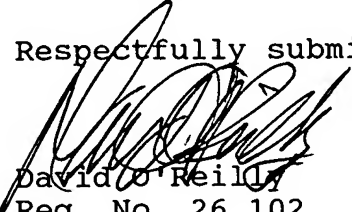
The publication of S. Benedetto, "Polarization Recovery in Optical Polarization Shift-Keying Systems," IEEE Trans. On Comm., vol. 45, No. 10, October 1997, discusses in detail a demodulator tracking loop.

The remaining publications are only of general interest for their relationship to optical transmission and communication networks.

Copies of these references are enclosed.

None of the references cited above appear to teach or fairly disclose, alone or in any reasonable combination, the novel features of applicant's claimed invention.

Respectfully submitted,


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Date: February 26, 2002

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